

Remarks

In the August 14, 2003, Office Action, Claims 1-3, 6, 25, 26, and 28-33 were rejected under 35 U.S.C. Section 103(a) as being unpatentable over Ford (U.S. Patent No. 5,638,651) in view of Porter (U.S. Patent No. 6,408,594). Claims 4, 5, 11, 12, 14, and 15 were rejected under 35 U.S.C. Section 103(a) as being unpatentable over Ford (U.S. Patent No. 5,638,651) in view of Porter (U.S. Patent No. 6,408,594) and Nogradi (U.S. Patent No. 4,961,298). Claims 21-24 were rejected under 35 U.S.C. Section 103(a) as being unpatentable over Ford (U.S. Patent No. 5,638,651) in view of Porter (6,408,594) and Beliveau (U.S. Patent No. 5,893,248). Applicant respectfully traverses the rejection of the above-identified claims in light of the amendments and arguments presented herein.

In addition, Claims 7-10 and 27 were objected to as being dependent upon a rejected base claim, but indicated to be allowable if rewritten in independent form including all of the limitations from the base claim. Applicant respectfully notes that Claims 9 and 10 are independent claims, and therefore do not depend on a rejected base Claim. Applicant considers Claims 9 and 10 allowed for the purposes of this response. Claims 13 and 16-20 were allowed.

Applicant regards as his invention a novel, highly efficient rigid foam insulated panel for commercial and residential construction. The insulated panel is generally rectangular in shape, having first and second planar surfaces (faces), opposing sides

edges and top and bottom edges therebetween. At least two grooves (14, 16) are formed within one of the two planar surfaces – and not within one of the narrow side, top or bottom edges. The grooves are preferably located on the same side of the panel – and not located on opposite sides of the panel. The grooves extend the entire length of the planar surface. Each groove contains a reinforcing strip 18 located on the same side of the panel and which also extend the entire length of the planar surface.

Each reinforcing strip is completely disposed with a groove, having a top surface (19) that is coplanar with the panel's exterior surface and having a recessed central portion (30) that extends further into and is in contact with the edges of the groove. The reinforcing strips do not extend or above from the planar surface of the foam panel (nor do they extend outwardly from any edge of the foam panel). Indeed, the central portion 30 is intentionally recessed inside the planar surface of the foam panel in order to permit a fastening device to be recessed within the foam panel (or to be flush with the exterior of the planar surface of the foam panel) – without disrupting the smooth exterior surface of the panel. Further, each of the two planar surfaces are completely covered with a thin, reinforcing sheet (20, 22). The sheet (20) completely covers the reinforcing strips, leaving a flat, smooth exterior surface to the planar surface. The reinforcing sheets completely cover, but do not extend beyond or fall short of the edges of the planar surfaces of the foam panel.

Independent Claims 1, 3, 4, 5, 11, and 23 are amended to recite that the channels are disposed within the grooves on only one side of the panel. In addition, each and every independent claim recites first and second reinforcing sheets that completely cover each of the first and second planar surfaces of the rigid foam panel.

Additionally, new Claims 34 through 37 have been added.

The primary references cited by the Examiner are not believed to be relevant to the present invention, and certainly in no way teach or suggest the present invention as claimed. Ford (5,638,651) discloses an expanded polystyrene (EPS) core sandwiched between rigid oriented strand board (OSB) for use in an interlocking system on panels. The Applicant respectfully notes that the Examiner's description of Ford is incorrect -- Ford does not disclose a core formed from OSB; rather the core of Ford is sandwiched between OSB board. As such, Ford does not teach, disclose or suggest the invention recited in the present claims.

In particular, Ford does not teach or disclose a rigid foam panel having two grooves that are formed in a first side/face of the panel, as recited in the present claims. Indeed, as the Examiner points out in her labels on Fig. 1A of Ford, Ford teaches away from the present invention by only disclosing grooves (26) and channels (24) located on opposite sides (first and second sides) of the core (labeled by the Examiner as SE and FE) (See column 3, lines 48-53). Each and every embodiment taught by Ford includes grooves and channels on opposite planar sides of the core panel (and only on one end of

the core panel), in order to enhance the structural integrity of the tongue portion (a side edge of the panel) which will connect with other panels.

In addition, Ford does not teach reinforcing channels that are completely disposed or recessed within the core panel, inside the grooves. The Ford channels are located substantially exterior or external to the core panel, and indeed, extend beyond and wrap around onto the surface SE of the core panel. The flange of the channel (24) that is inserted into the slot (26) merely serves as an anchor for the remaining portion of the channel. Because the purpose of the Ford channels is to reinforce the "tongue and groove" interlocking system of the Ford invention, the channels must be configured in this fashion. Thus, Ford does not teach or disclose a channel having recessed portion configured to receive and support a fastener; rather, the flange of the channel (24) is inserted into the slot (26) and is neither designed nor intended to receive any sort of fastening device.

Also, Ford does not teach or suggest first and second reinforcing layers that substantially covers each of the opposing planar surfaces. Rather, Ford teaches away from the present invention by providing OSB board that is intentionally offset from the polystyrene panel to permit the tongue and groove relationship -- the strand board does not substantially cover the both entire planar surfaces of the core. Moreover, the nails or screws (28) are provided to secure the thick, heavy OSB to the channels and are not provided as fastening mounts to secure the panel to a wall.

Porter (6,408,594) teaches an insulated panel core (16) having pairs of reinforcing channels embedded along the width of the panel. The channels are oriented to be planar with the panel surface. The pairs of reinforcing channels are located on opposite sides of the panel in order to accommodate large axial, transverse and compression loads. No other configuration of reinforcing channels is suggested or taught by Porter -- as pairs of reinforcing channels on opposite sides of the panels are specifically taught as an advantage of the invention. Each surface of the panel is covered with a facing (12, 14). The reinforcing channels are oriented to be flush with the surfaces of the panel such that they are in contact with and bonded to the outer facings (See column 3, lines 31-39). Thus, the channels do not permit a fastening mechanism to be secured flush with surfaces; rather, the fastening mechanism will protrude from the surface of the panel.

In light of the foregoing, Applicant respectfully disagrees with the Examiner's assertion that the present invention is obvious in light of Ford and Porter both because the Examiner has not established a *prima facie* case of obviousness and because the references do not teach the claimed combination. To establish a *prima facie* case, there must be some suggestion or motivation, either in the references themselves or in knowledge generally available to one of ordinary skill in the art, to modify the reference. Second, there must be a reasonable expectation of success. Finally, the prior art reference must teach or suggest all the claim limitations of the invention as a whole. None of these elements are met by the combination rejections at hand.

Rejection of Claims 1-3, 6, 25, 26 and 28-33

Claims 1-3, 6, 25, 26 and 28-33 were rejected under 35 U.S.C. Section 103(a) as being unpatentable over Ford (U.S. Patent No. 5,638,651) in view of Porter (U.S. Patent No. 6,408,594). Applicant respectfully asserts that Claims 1 and 3 are not obvious in view of Ford or Porter or both. In particular, these references do not teach all of the limitations of the claims they are asserted against. In addition, there is no suggestion, motivation or teaching inherent or explicit in either reference to combine with it with the other to achieve the present invention.

First, neither Ford nor Porter discloses, teaches, or suggests first and second grooves formed within only a first side of a rigid foam panel having first and second planar sides, as recited in Claims 1 and 3. Likewise, neither Ford nor Porter discloses, teaches, or suggests first and second reinforcing strips disposed in the grooves on the first side of the rigid foam panel such that the reinforcing strips are present in only one of the two planar sides of the foam panel.

As stated above, Ford is distinguished from, and specifically teaches away from, the present invention by disclosing a panel for use in a tongue and groove relationship which contains two slots formed in opposite sides of the panel. Moreover, Ford teaches channels with only a flange thereof inserted in each slot (on opposite sides of the panel) -- and not a channel completely recessed or disposed within the panel's core. Indeed, the other portions of the channel extend out from each of the two sides in order to partially

cover one end of the panel to reinforce the tongue portion of the panel. In addition, Porter is distinguished over, and specifically teaches away from, the present invention by providing channels that are formed within the panel on opposite planar sides of the panel -- and thus, does not teach or suggest grooves and/or channels that are located only within a first side of a panel. In fact, Porter teaches only pairs of channels located on opposite, opposing sides of the panel core. As such, there can be no combination of Ford and Porter that teaches all the limitations of the present invention.

Further, with respect to Claim 3, neither Ford nor Porter teaches texturizing the reinforcing strips.

Moreover, there is simply no suggestion, motivation or teaching in Ford to make the Examiner's proposed combination with Porter. Indeed, Ford teaches an interlocking wall panel system in which polystyrene panels are sandwiched between off-set oriented strand board to create interlocking prefabricated walls. Importantly, Ford discloses a system to maximize the insulating factor by creating a system that does not require additional parts for joining the panels together – to minimize air "shorts" between panels. In addition, Ford describes minimal parts to the system as an important part of his invention. In Ford, the OSB is provided in 3/8 inch to 1 inch thickness to provided structural rigidity to the polystyrene sheet. Further, Ford specifically includes channels that overlie the corners of one side/edge of the polystyrene panel to prevent air shorts and to enhance the structural rigidity the side of the panel not covered with OSB. This end is

used as the tongue end of the tongue and groove system. In order to provide the disclosed system, the OSB board must be off-set allowing the channels to be secured to the end.

In contrast, Porter discloses an alternate and wholly different type of panel. For example, Porter teaches an insulated panel reinforced with a plurality of channels embedded within and located in pairs on opposite sides of the panel. Ford clearly teaches away from using a plurality of channels (parts) within its core. Further unlike Ford, each channel in Porter is co-planar with, but does extend beyond the exterior of the panel surface. In addition, each side of the Porter panel is completely covered with plastic impregnated sheets - sheets that do not fall short of or extend beyond the perimeters of the panel core. In contrast to Ford, the Porter panels do not interlock, and require an additional connecting mechanism (e.g., 46a & 46b, 48a & 48b, 74) to be joined. Moreover, Porter does not itself disclose a wall system; rather, the panels of Porter must be further covered with OSB or drywall, as the construction requires. Clearly, Ford and Porter represent totally divergent types of panels, the combination of which is not taught, suggested or encouraged by either reference.

Further, it is respectfully suggested that the cited combination and rationale is inconsistent with either reference. For instance, there is no motivation or suggestion in Ford to imbed channels within the polystyrene (as orientated in Porter) or to completely cover the panels with plastic impregnated paper -- this would add unwanted parts and

thermal shorts to the Ford wall panel. Further, reorientation of the end-channels in Ford to a configuration other than that disclosed is simply not contemplated or suggested. Indeed, the channels and slots of Ford are specifically provided to allow for the interlocking relationship between panels and to provide reinforcement to the areas where the polystyrene is not covered with OSB.

Further, replacing the board (OSB) with plastic impregnated paper would completely alter the purpose and utility of the Ford invention. While plastic impregnated paper might increase the tensile strength of the polystyrene, it is thin as does not provide the thickness or rigidity required by Ford. Again, Ford discloses a complete wall system and clearly teaches away from the insulated panels of Porter. Clearly, substitution of PIP for OSB alters the principal operation of Ford, that is, to provide prefabricated, reinforced interlocking wall systems.

In addition, there is no motivation or suggestion in Ford to replace the offset OSB board with OSB board (or any other material) that completely covers the polystyrene core, such as the thin, plastic impregnated paper used in the Porter reference. Clearly, Ford teaches away from OSB or any other material that would completely cover the entire polystyrene core. Such a combination would clearly destroy the reinforced, interlocking tongue and groove system taught by Ford. Thus, not only are the above modifications not suggested or taught by either reference, there is no motivation to make such combinations, as the modifications clearly destroy the intended function of Ford.

Accordingly, Applicant asserts that Claims 1-3, 6, 25, 26, 28-33 and all claims depending therefrom, including Claims 7, 8, and 25, are not obvious in view of Ford and Porter, and are believed in condition for allowance.

Rejection of Claims 4, 5, 11, 12, 14, and 15

Claims 4, 5, 11, 12, 14, and 15 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ford (U.S. Patent No. 5,638,651) in view of Porter (U.S. Patent No. 6,408,594) and Nogradi (U.S. Patent No. 4,961,298). Applicant respectfully traverses this rejection.

As stated above, there is no motivation, suggestion or teaching in any of the references to make the Examiner's proposed combination. Nogradi, cited for teaching a plurality of spaced openings, does not suggest modification of Ford or Porter that discloses or teaches the invention as recited in Claims 4, 5 or 11. In particular, Nogradi teaches ventilation holes 16 to prevent the reinforcing members from swimming within the large grooves filled with adhesive 18 -- and they are not configured to engage or receive fasteners. One would not garner from Ford or Porter a need to provide such ventilation holes, as recited in Nogradi, because neither Ford nor Porter teach or suggest grooves that are much larger in dimension than the channel members. Thus, there is no need in Ford or Porter for ventilation holes that prevent the channel member from "swimming" in a thick layer of adhesive coating. Further, neither Ford nor Porter teach or discuss the need for fastening holes of any kind, because each of Ford and Porter

provide other means for securing the panels to each other and in place in a building construction; thus, there is simply no motivation, suggestion or teaching to make the Examiner's proposed combination of Ford and Porter with Nogradi.

Nonetheless, Nogradi, if combined with Ford, Porter or both, does not teach or suggest any modification of Ford and Porter that achieves the present invention. Indeed Nogradi teaches yet another alternate wall panel -- namely, exterior wall panels. Specifically, Nogradi teaches reinforcing strips 12 that extend beyond the length of the panels (see col. 3, line 12-21), i.e. the channels are extra long to provide for attachment of the ends of the panels to an exterior wall -- a wholly different and alternate configuration from Ford, Porter or the present invention.

Finally, Nogradi, in any combination with Ford or Porter, does not disclose, teach, or suggest a reinforcing layer bonded to the side of the sheet containing the reinforcing strips that substantially covers the entire said of the sheet including covering the grooves and the reinforcing strips. Such a reinforcing layer is not contemplated by Nogradi. Indeed, Nogradi teaches away from such a reinforcing layer by specifically providing for reinforcement only on sides opposite the surface that contains the reinforcing members (see col. 4, lines 1-8).

Accordingly, Applicant asserts that Claims 4, 5, and 11, and all claims depending therefrom, including Claims 7 and 8, are not obvious in view of Ford, Porter, and Nogradi, and are believed in condition for allowance.

Rejection of Claims 21 and 22

Claims 21 and 22 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ford (U.S. Patent No. 5,638,651) in view of Porter (6,408,594) and Beliveau (U.S. Patent No. 5,893,248). Claim 3 distinguishes over Ford and Porter for all the reasons cited above. Beliveau, cited for providing a reinforcing strip with a recessed central portion, does not suggest modification of Ford and Porter that would anticipate Claim 3. Therefore, it is submitted that Claims 21 and 22 are patentable along with respective parent Claim 3.

Rejection of Claims 23 and 24

Claims 23 and 24 were also rejected under 35 U.S.C. 103(a) as being unpatentable over Ford (U.S. Patent No. 5,638,651) in view of Porter (6,408,594) and Beliveau (U.S. Patent No. 5,893,248). Applicant respectfully traverses this rejection.

As stated above, there is no motivation, suggestion or teaching in Ford or Porter to make the Examiner's proposed combination. Beliveau is cited for teaching that it is known to provide a reinforcing strip with a central recessed portion and two non-recessed portions. However, Beliveau does not suggest modification of Ford or Porter that discloses or teaches the invention as recited in Claim 23.

First, as stated above, neither Ford nor Porter teaches or discusses the need for fastening holes of any kind, because each of Ford and Porter provide other means for securing the panels to each other and in place in a building construction.

In addition, as stated above, both Ford and Porter each teach channels that are arranged and configured for the specific type of panel disclosed; there would simply be no need to modify the disclosed channels to conform to Beliveau. For example, Ford discloses a wall panel having minimal amount of parts, and channels that are provided to allow for the interlocking system -- the channels are substantially exterior to the panel core, and are not intended to be recessed, and do not include an extended slot for receiving fasteners. Likewise, Porter discloses pairs of channels that serve a reinforcement purpose only, with attachment occurring at the top and bottom of the panel through sides other than those which include the channels (see Fig. 7). In the case of the Porter wall panels, there is no suggestion that the panels would even need to be affixed to anything directly behind or in front of the panels, as in Beliveau. Clearly, there is no reason one would make the combination, substitution or modification of Ford or Porter to the Beliveau channels.

Accordingly, Applicant asserts that Claim 23 and dependent Claim 24 are not obvious in view of Ford, Porter, and Beliveau, and are believed to be in condition for allowance.

The Applicant respectfully asserts that all of the aforementioned Section 103 obviousness rejections are based on improper hindsight reasoning. The Examiner has used the highly innovative and novel solution taught by the Applicant as a blueprint, with the Ford and Porter references as the main structural diagram, and looked to other prior

art for individual elements present in the claims but missing from the primary references. In addition, focusing on the obviousness of substitutions and differences instead of the invention as whole is an improper way to make a determination of obviousness. This approach has been uniformly and consistently rejected by the Federal Circuit and in doing so the Examiner disregards the statutory mandate that the invention be viewed "as a whole."

Claims 7, 8, and 27

Claims 7 is dependent from Claim 6, which is in turn dependent from Claims 3, 4, and 5. Claim 8 is dependent from Claim 7. Claim 27 is dependent from Claim 25, which is in turn dependent from Claim 3. In light of the preceding discussion, Claims 7, 8, and 27 are believe in condition for allowance at this time.

Applicant believes that Claims 1 through 37 as amended are patentable at this time. Accordingly, these claims remain pending following entry of this Amendment, and are in condition for allowance at this time. As such, Applicant respectfully requests entry of the present Amendment and reconsideration of the application, with an early and favorable decision being solicited. Should the Examiner believe that the prosecution of

the application could be expedited, the Examiner is requested to call Applicant's undersigned attorney at the number listed below.

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